

IN THE CLAIMS

1. – 40. (Cancelled)

41. (New) A computer readable medium containing an executable program for configuring a computing system having a plurality of tunable parameters, where the program performs the steps of:

formulating an optimal setting for the configuration of at least two of the plurality of tunable parameters as a black box optimization problem; and

solving the black box optimization problem using a smart hill climbing method, where the optimal setting yields improved computing system performance, and wherein the smart hill climbing comprises:

performing a global search; and

performing a local search on a starting point identified by said global search,

wherein at least one of the global and local searching steps comprises the steps of:

establishing a local search neighborhood around an initial candidate point;

generating a plurality of samples from within the local search neighborhood;

updating information regarding optimal computing system parameter configuration, based on the plurality of samples generated; and

processing the plurality of samples to generate a second candidate point for the solution to the black box optimization problem, wherein the step of processing the plurality of samples further comprises the steps of:

constructing a quadratic fitting curve based on the generated samples, wherein a quadratic fitting curve is constructed for each dimension;

identifying a minimal point according to the quadratic fitting curve; and

combining the minimal points for all dimensions to generate the second candidate point.

42. (New) The computer readable medium of claim 41, further comprising the steps of:

constructing a new quadratic fitting curve including the second candidate point, if the second candidate point will not yield better computing system performance than the initial candidate point; and

generating a subsequent candidate point based on the new quadratic fitting curve.

43. (New) The computer readable medium of claim 42, further comprising the steps of:

modifying the local search neighborhood so that the subsequent candidate point is at the center of the local search neighborhood, if the subsequent candidate point will yield better computing system performance than the initial candidate point; and

generating a subsequent sample; and
updating information regarding optimal computing system parameter configuration, based on the subsequent sample.

44. (New) The computer readable medium of claim 42, further comprising the step of:

shrinking the size of the local searching neighborhood, if the subsequent candidate point will not yield better computing system performance than the initial candidate point.

45. (New) The computer readable medium of claim 44, further comprising the step of:

generating a new sample from the local searching neighborhood, if the size of the local searching neighborhood has not shrunk beyond a predefined threshold; and

updating information regarding optimal computing system parameter configuration, based on the new sample.

46. (New) A method for configuring a computing system having a plurality of tunable parameters, the method comprising:

formulating an optimal setting for the configuration of at least two of the plurality of tunable parameters as a black box optimization problem; and

solving the black box optimization problem using a smart hill climbing method, where the optimal setting yields improved computing system performance, and wherein the smart hill climbing comprises:

performing a global search; and

performing a local search on a starting point identified by said global search,

wherein at least one of the global and local searching steps comprises the steps of:

establishing a local search neighborhood around an initial candidate point;

generating a plurality of samples from within the local search neighborhood;

updating information regarding optimal computing system parameter configuration, based on the plurality of samples generated; and

processing the plurality of samples to generate a second candidate point for the solution to the black box optimization problem, wherein the step of processing the plurality of samples further comprises the steps of:

constructing a quadratic fitting curve based on the generated samples, wherein a quadratic fitting curve is

constructed for each dimension;
identifying a minimal point according to the quadratic fitting curve; and
combining the minimal points for all dimensions to generate the second candidate point; and
applying the optimal setting to configure the computing system.

47. (New) The method of claim 46, further comprising:

constructing a new quadratic fitting curve including the second candidate point, if the second candidate point will not yield better computing system performance than the initial candidate point; and

generating a subsequent candidate point based on the new quadratic fitting curve.

48. (New) The method of claim 47, further comprising:

modifying the local search neighborhood so that the subsequent candidate point is at the center of the local search neighborhood, if the subsequent candidate point will yield better computing system performance than the initial candidate point; and

generating a subsequent sample; and
updating information regarding optimal computing system parameter configuration, based on the subsequent sample.

49. (New) The method of claim 47, further comprising:

shrinking the size of the local searching neighborhood, if the subsequent candidate point will not yield better computing system performance than the initial candidate point.

50. (New) The method of claim 49, further comprising:

generating a new sample from the local searching neighborhood, if the size of the local searching neighborhood has not shrunk beyond a predefined

threshold; and

updating information regarding optimal computing system parameter configuration, based on the new sample.

51. (New) Apparatus for configuring a computing system having a plurality of tunable parameters, the apparatus comprising:

means for formulating an optimal setting for the configuration of at least two of the plurality of tunable parameters as a black box optimization problem; and

means for solving the black box optimization problem using a smart hill climbing method, where the optimal setting yields improved computing system performance, and wherein the smart hill climbing comprises:

performing a global search; and

performing a local search on a starting point identified by said global search,

wherein at least one of the global and local searching steps comprises the steps of:

establishing a local search neighborhood around an initial candidate point;

generating a plurality of samples from within the local search neighborhood;

updating information regarding optimal computing system parameter configuration, based on the plurality of samples generated; and

processing the plurality of samples to generate a second candidate point for the solution to the black box optimization problem, wherein the step of processing the plurality of samples further comprises the steps of:

constructing a quadratic fitting curve based on the generated samples, wherein a quadratic fitting curve is constructed for each dimension;

identifying a minimal point according to the quadratic fitting curve; and

combining the minimal points for all dimensions to generate the second candidate point; and

means for applying the optimal setting to configure the computing system.